

**Butterfly and Moth (Lepidopteran) Survey of Pictured Rocks  
National Lakeshore, 2000-2006**

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## **Butterfly and Moth (Lepidopteran) Survey of Pictured Rocks National Lakeshore, 2000-2009**

### **Abstract**

Survey of butterflies, moths, and skippers (Lepidoptera) of Pictured Rocks National Lakeshore, Alger County, Michigan, was conducted from 2000-2006. Forest edges, bogs, river banks, old fields, and outdoor night lights were examined annually from May to October for adult stages. Specimens were pinned, mounted; species not documented previously from Alger County or those of uncertain identity were sent to Michigan State University's Department of Entomology for confirmation of their status and taxonomy. Survey documented 102 taxa, including 18 county records.

### **Keywords**

Butterfly, Lepidoptera, moth, Pictured Rocks National Lakeshore, skipper

### **Introduction**

Butterflies, skippers, and moths (Lepidoptera) of Alger County, Michigan (MI), including Pictured Rocks National Lakeshore, were under-collected prior to 1999 for the purpose of a county inventory (Nielsen 1999). Lepidoptera of three adjacent counties (Marquette, Schoolcraft, and Delta), however, have been collected since the 1940s as part of entomological studies at Northern Michigan University, Marquette, MI. Other central Upper Peninsula counties have been surveyed to varying degrees by researchers from Michigan State University (MSU), East Lansing, MI. Collecting efforts began at Pictured Rocks National Lakeshore (PIRO) in 2000.

### *Natural History*

Butterflies and moths are insects (Class Insecta, Order Lepidoptera) that holometabolously metamorphose (exhibit pupal stage between larval and adult stages) from segmented, soft-bodied, wingless larvae (caterpillars) to scaled-winged adults (Glassberg 1999). Many species are host-specific, and their distributions are within the geographic ranges of the larval host plants, adult nectaring plants, and adult egg-laying

plants (Glassberg 1999 and Nielsen 1999). Larvae of most species are herbivorous, while adults feed primarily on nectar, although some have reduced mouthparts and do not feed (*e.g.*, cacao webworm in Family Xyloryctidae) (Bailey 1978).

Characteristics and life histories of moths (polyphyletic: phylogeny unresolved) and butterflies (Suborder Rhopalocera) differ, and within the Suborder Rhopalocera, skippers (Family Hesperidae) are distinctly different from other families (Covell 1984, Glassberg 1999). Butterflies possess clubbed antennae and slender, pubescent thoraces and abdomens; they hold their wings vertically at rest and are generally diurnal (Glassberg 1999). Humans rarely consider their larvae pests. Moths (phylogeny unresolved) hold their wings roof-like over their stout, tomentose bodies; possess spiny frenula to hold the fore- and hind-wings together in flight; exhibit filamentous, setose antennae; and most species are crepuscular or nocturnal (Covell 1984). Moth larvae of some species are notorious for noticeable defoliation of forests and agricultural crops. Skippers (Suborder Rhopalocera: Family Hesperidae) exhibit characteristics of both butterflies and moths, and were once thought to be the evolutionary link between the two but are now classified with butterflies in the Suborder Rhopalocera (Glassberg 1999). Skippers have stout, tomentose bodies, hold their small wings in vertical to horizontal position at rest, have semi-clubbed antennae that bear filaments with hooked tips, and are diurnal; their larvae are rarely considered nuisances by forest managers or agriculturalists (Glassberg 1999).

A few species of Lepidopterans are relatively long lived (6-8 months) and hibernate under tree bark as adults [*e.g.*, *Polygonia satyrus* (satyr anglewing), *Nymphalis antiopa* (mourning cloak)], but most overwinter as eggs, larvae, or pupae depending on the species and live as adults only a few weeks (Brock and Kaufman 2003 and Internet reference 5).

Previous documentation of Lepidoptera at PIRO is limited to Boyle and others (1999) who list two Lepidopteran taxa in larval stages (one was identified from the Family Tortricidae, and another was identified only as a Lepidopteran) during a systematic survey of macroinvertebrates from lotic habitats at PIRO. This report is the result of a

concerted effort from July 2000 to September 2006 to inventory adult specimens of butterflies, skippers, and moths at PIRO.

## **Study Area**

Pictured Rocks National Lakeshore, a unit of the U.S. National Park Service, spans 62 km of Lake Superior's southern shoreline, and is composed of two zones, both entirely within Alger County, MI, USA. The acreage of the shoreline zone, which is publicly (federally) owned, is 13,731 hectares (ha). Its inland buffer zone (IBZ), encompassing 15,907 ha, is owned by state, corporate, private, and federal entities that are subject to local township zoning regulations. Logging and other resource production are allowed in the inland buffer zone (USC 1966). Seventy-five percent of the surface area of the combined zones is upland forest (dominated by maple/beech hardwoods and mixed conifers), 14% is wetlands, 8% is open land (dunes, old fields, roads, and other development), and 3% is inland waters. Weather is, to a great extent, under the influence of Lake Superior, as prevailing winds are from the northwest. The average number of growing days (between last spring frost and the first autumn frost) is 95 days.

## **Methods**

Collection sites were sought for habitat preferred by butterflies, skippers, and moths: old fields, forest edges, roadsides with blooming wildflowers, and outdoor lights. Specimens were actively captured with 12 and 14 inch diameter nylon-mesh aerial nets (BioQuip®, Rancho Dominguez, CA) during daylight hours and at night near lights. Most collection efforts were on sunny, calm afternoons when butterflies and skippers are most active. Some moths were passively captured in mist nets during nocturnal bat surveys.

Acetone vapors in a covered jar were used to kill some specimens prior to being pinned. Other specimens were placed in labeled, glassine envelopes and frozen; they were pinned immediately after removal from the freezer. Each specimen was pinned on a spreading board, allowed to dry for at least one week, and mounted in a hardwood *Schmitt* box (BioQuip®, Rancho Dominguez, CA) containing PDB (paradichlorobenzene) fumigant.

Specimens were identified with information contained in Nielsen (1999), Covell (1984), Pyle (1981), Ferguson and others (1999), as well as Internet resources (Internet references 1-4), and labeled with its scientific name, date of collection, location, habitat, collector's name, collector's number (if applicable), taxonomist's name, and year of identification. Specimens are organized by family and are stored in *Schmitt* boxes along with the Alger County Lepidopteran Survey collection at the Science and Natural Resources Division of PIRO, 604 W. Munising Ave, Munising, Michigan.

Thirty-two specimens, as noted in Table 3, were sent to Mr. Mogens C. Nielsen, Adjunct Curator, Department of Entomology, MSU, East Lansing, Michigan, for taxonomic confirmation or determination. At his discretion, a few voucher specimens remain in the MSU Museum of Zoology collection, as noted in Table 3.

## **Results**

Of 201 Lepidoptan specimens collected and observed at PIRO from 2000-2006 under efforts of this survey, 102 taxa of Lepidoptera (excluding unknowns) from 17 families were identified. Species collected and observed at PIRO are listed in Table 1 which is organized in phylogenetic order; common names are provided. The collection includes 37 butterfly taxa, 13 skipper taxa, and 52 moth taxa (Table 1). None was documented previously from PIRO, although all but 17 taxa were documented previously in Alger County (Nielsen 1999). Several specimens remain that have not been identified beyond the family level: they are all moths in the Geometridae, Noctuidae, Pyralidae, and Tortricidae families (Table 3).

Baltimore (*Euphydryas phaeton*) is included on the list as an observation. A specimen was caught and released on 17 July 2000 in Becker Field during Youth Conservation Corps educational session led by John F. Douglass. A specimen of the species has been sought since without success.

## **Discussion**

Lepidopteran Survey of Pictured Rocks National Lakeshore, 2000-2006 resulted in the addition of 18 county records. The distribution of these species in Michigan now includes Alger County. Eight of the 18 are butterflies (*Incisalia eryphon*, *Incisalia niphon*, *Satyrrium acadium*, *Satyrrium titus*, *Celastrina lucia*, *Celastrina neglecta*, *Junonia coenia*, and *Megisto cymela*), four are skippers (*Thorybes pylades*, *Hesperia leonardus*, *Ancyloxypha numitor*, and *Ancyloxypha hegon*), and six are moths (*Alypia langtoni*, *Eufidonia discospilata*, *Pangrapha decoralis*, *Apamea inordinata*, *Leuconycta diptheroides*, and *Paranthrene tabaniformis*, the latter an exotic species).

Six non-native Lepidopteran species were collected in PIRO. *Lymantria dispar* (Gypsy Moth) is discussed above. *Lycaena phleas americana* (Little Copper, American Copper) was once considered a native species, but its host plant, *Rumex acetosella* (sheep sorrel), is now considered native to Europe (Otis 1994). The North American subspecies of *Lycaena phleas* is morphologically distinct from its European ancestors (Nielsen 1999). It is unknown whether *L. phleas americana* has displaced native species because its host plant is also non-native, however the combination of non-native plant and its pollinator has altered to some degree the communities they occupy. *Thymelicus lineola* (European skipper) was introduced to Ontario in 1910 (Otis 1994) and was discovered in Wayne County, MI in 1995 (Nielsen 1999). Its larvae feed on several introduced and native grasses, and may reach pest level in hay fields. Competition for nectar sources may lead to reduction in populations of native species of Lepidoptera and Hymenoptera (Otis 1994). *T. lineola* was observed in high abundances in PIRO and was one of the most abundant Lepidopteran species. *Pieris rapae* (cabbage butterfly), introduced from Europe in 1860, was observed in PIRO and is abundant throughout the state. Its larvae are herbivores of plants in the mustard family. Displacement of native species of whites (Family Pieridae), including checkered white (*Pontia protodice*) and mustard white (*Pieris napi oleracea*), may be attributable to *Pieris rapae* (Nielsen 1999). Reasons for the decline of these native whites continue to be studied, but all three use the same host plants, so the possibility of competitive exclusion cannot be disregarded. The presence of the invasive *Paranthrene tabaniformis* (Rottemberg) was first documented from Alger County during this survey; the specimen has been retained by MSU.

Six of the taxa collected in PIRO may defoliate to a noticeable extent. Of these, non-native gypsy moth (*Lymantria dispar*) is capable of the greatest herbivory. *L. dispar* is abundant within Pictured Rocks National Lakeshore, and it was monitored throughout the Upper Peninsula of MI, including PIRO, during the previous decade by US Forest Service using pheromone lures. Larvae may consume foliage of a wide variety of tree and shrub species (>500 throughout its range), including conifers (Wagner and others 1997). The native cranberry spanworm (*Ematurga amitaria*) is less well known. It resides in bogs and shrubby wetlands and is herbivorous on cranberry. Elm spanworm (*Ennomos subsignaria*), also native, is capable of defoliating several acres of deciduous forests (Wagner and others 2001). Its presence is indirectly indicated by leaves with only veins and edges intact. In forests dominated by older balsam fir and hemlock in the northern part of its range, hemlock looper (*Lambdina fiscellaria*) may reach relatively high densities (Wagner and others 2001). Hemlock looper also feeds on foliage of other hardwoods and conifers. Celery looper (*Anagrapha falcifera*), while native to North America, has likely advanced to the Upper Peninsula with agriculture and is recognized as an agricultural pest of cabbage, celery, corn, sugar beets, and lettuce. *A. falcifera* is the subject of recent research, as it is a natural host to a multiple nucleopolyhedrovirus, which is being tested as an insecticide for other agricultural pests (Internet reference 3). Army cutworm (*Euoxa auxiliaris*) is a notorious agricultural pest in the Great Plains states that feeds on wheat, oats, barley, mustard, flax, alfalfa, sweet clover, peas, cabbage, sugar beets, and native grasses. At larval densities nearing 200/ m<sup>2</sup>, *E. auxiliaris* may completely defoliate those taxa. At high densities, larvae may travel in hoards (armies) to seek preferred vegetation (Internet reference 4). Adults are variable in appearance; the specimen collected from Alger County was a light form.

Three taxa that occur at PIRO may migrate to take advantage of habitat in distant areas. Monarch (*Danaus plexippus*) is well-known for its migration from Mexico. Traveling lesser distances, however, are painted lady (*Vanessa cardui*) and red admiral (*Vanessa atalanta rubria*) (Glassberg 1999).

Some Tortricidae, Noctuidae, Arctiidae, and *Crambus* spp. (Pyrilidae) have aquatic larvae (Merritt and Cummins 1984). Future efforts should include collection of emergent aquatic vegetation in search of these taxa.

Five species have been observed at PIRO and recorded in the park's Wildlife Observation Database but have not been collected. Black swallowtail (*Papilio polyxenes asterius* Stoll), northern pine looper [*Caripeta piniata* Packer 1870], spotted tussock moth (*Lophocampa maculata*), white marked tussock moth (*Orgyia leucostigma*), and black dash [*Euphytes conspicuous* (W. H. Edwards)] should be targeted in future collecting efforts (PIRO 2003). The latter was observed at Sand Point beach roadside near pond on 14 July 2003 nectaring on bird's foot trefoil by Amy E. Maskey, but its occurrence in Alger County would be noteworthy as it is known from the southern half of the lower peninsula of Michigan but not further north. Mourning cloak [*Nymphalis antiopa* Linnaeus]] has been collected in Alger County and observed at Sand Point when patches of snow were on the ground, but the observation was not documented. A specimen should be sought. *Catocala relictata* has been reported and photographed in Miners Basin by seasonal park employee (PIRO Wildlife Observation Database 2003), however formal documentation has not occurred to date. For the present, this species is not included on the PIRO Lepidopteran list

A State of Michigan Threatened species, *Plebejus (Lycaeides) idas nabokovi* Masters (Northern Blue), has been documented previously in Alger, Schoolcraft, and Marquette Counties (Cuthrell 2001) but not within the park boundary. Its host plant, *Vaccinium caespitosum* Michaux (dwarf bilberry), however, has been reported within the park (Albert 2001). Given its global (G5TU) and state (S2) ranks (Cuthrell 2001), continued effort during its flight period from mid-June to mid-July (Wolf and Brzeskiewicz 2002 and pers. comm. MC Nielsen) should be given to find this species at PIRO.

The survey would benefit from continued effort. A list of species of butterflies and a few moths known from central Upper Peninsula counties (Table 2) should be sought in future collecting efforts in the park.



Relatively little effort was given to nocturnal surveys, thus moths are under-represented.

### **Acknowledgements**

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**TABLE 1: Lepidoptera of Pictured Rocks National Lakeshore,  
2000-2006**

Family / Subfamily	Scientific name	Common Name	Notes
<b>BUTTERFLIES (Rhopalocera)</b>			
Papilionidae			
Papilioninae			
	<i>Papilio canadensis</i> (Rothschild & Jordan)	Canada tiger swallowtail	
Pieridae			
Pierinae			
	<i>Pieris napi oleracea</i> (Harris)	Mustard white	
	<i>Pieris rapae</i> (Linnaeus)	Cabbage butterfly	Exotic
Coliandinae			
	<i>Colias philodice</i> (Godart)	Clouded sulphur	
	<i>Colias interior</i> (Scudder)	Pink-edged sulphur	
Lycaenidae			
Theclinae			
	<i>Incisalia augustinus</i> (W. Kirby)	Brown elfin	
	<i>Incisalia polia</i> (Cook and Watson, 1907)	Hoary elfin	
	<i>Incisalia eryphon</i> (Boisduval, 1852)	Western pine elfin	County record
	<i>Incisalia niphon clarki</i> T. N. Freeman 1938 (syn. <i>Callophrys niphon</i> )	Eastern pine elfin	County record
	<i>Satyrrium acadicum</i> (W. H. Edwards, 1862)	Acadian hairstreak	County record
	<i>Satyrrium liparops strigosum</i> (Harris)	Striped hairstreak	
	<i>Satyrrium titus</i> (Fabricius 1793)	Coral hairstreak	County record
Polyommatainae			
	<i>Celastrina lucia</i> (W. Kirby)	Northern spring azure	County record
	<i>Celastrina neglecta</i> (W. H. Edwards)	Summer azure	County record
	<i>Plebejus saepiolus amica</i> (W.H. Edwards)	Greenish blue	
Lycaeninae			
	<i>Lycaena phlaeas americana</i> Harris	American copper	Exotic
	<i>Lycaena epixanthe americanensis</i> (Rawson)	Bog copper	
Nymphalidae			
Heliconiinae			
	<i>Speyeria cybele krautwurmi</i> (Holland)	Krautwurm's fritillary	
	<i>Speyeria atlantis</i> (W.H. Edwards)	Atlantis fritillary	
	<i>Boloria selene atrocostalis</i> (Huard, 1927)	Bog silver-bordered fritillary	
Nymphalinae			
	<i>Phyciodes selenis</i> (W.F. Kirby, 1837)	Northern pearl crescent	
	<i>Euphydryas phaeton</i> (Drury)	Baltimore	
	<i>Vanessa virginiensis</i> (Drury)	American painted lady	
	<i>Vanessa cardui</i> (Linnaeus)	Painted lady	
	<i>Vanessa atalanta rubria</i> (Frufstorfer)	Red admiral	
	<i>Junonia coenia</i> (Hübner)	Buckeye	County record
	<i>Polygonia comma</i> (Harris)	Comma	
	<i>Polygonia progne</i> (Cramer)	Gray comma	
	<i>Polygonia interrogationis</i> (Fabricius)	Question mark	
	<i>Nymphalis milberti</i> (Godart)	Milbert's tortoise shell	
Limenitidinae			
	<i>Limenitis arthemis arthemis</i> (Drury)	White admiral	

**TABLE 1 con't : BUTTERFLIES** (Rhopalocera)

Satyrinae		
<i>Coenonympha tullia inornata</i> W. H. Edwards	Inornate ringlet	
<i>Cercyonis pegala nephele</i> (W. Kirby)	Wood nymph	
<i>Megisto cymela</i> (Cramer 1777)	Little wood satyr	County record
<i>Danaus plexippus</i> (Linnaeus)	Monarch	
<i>Enodia anthedon</i> A. H. Clark	Northern pearly eye	
<i>Oeneis chryxus strigulosa</i> (McDunnough)	Chryxus arctic	
Hesperiidae		
Heteropterinae		
<i>Carterocephalus palaemon mandan</i> (W. H. Edwards)	Arctic skipper	
Pyrginae		
<i>Thorybes pylades</i> (Scudder) (syn. <i>Pholisora catullus</i> Fabricius)	Northern cloudy wing	County record
<i>Erynnis icelus</i> (Scudder & Burgess) (syn. <i>E. brizo</i> Boisduval & LeConte)	Dreamy dusky wing	
Hesperiinae		
<i>Poanes hobomok</i> (Harris)	Hobomok skipper	
<i>Polites themistocles</i> (Latreille, 1824)	Tawney-edged skipper	
<i>Polites mystic</i> (W. H. Edwards 1963)	Long dash	
<i>Thymelicus lineola</i> (Ochsenheimer)	European skipper	Exotic
<i>Hesperia comma laurentina</i> (Lyman)	Laurentian skipper	
<i>Hesperia leonardus</i> Harris 1862	Leonard's skipper	County record
<i>Euphyes vestris metacomet</i> (Harris)	Dun skipper	
<i>Ancyloxypha numitor</i> (Fabricius, 1793)	Least skipper	County record
<i>Amblyscirtes hegon</i> (Scudder, 1864)	Salt and pepper skipper	County record
<i>Amblyscirtes vialis</i> (W. H. Edwards)	Roadside skipper	
<b>MOTHS</b> (Polyphyletic – various superfamilies)		
Sphingidae		
Macroglossinae		
<i>Hemaris thysbe</i> (Fabricius)	Hummingbird clearwing	
Sphinginae		
<i>Pachysphinx modesta</i> (Harr.)	Modest sphinx	
Saturnidae		
Saturniinae		
<i>Actias luna</i> (Linnaeus)	Luna moth	
<i>Hyalophora cecropia</i> (Linnaeus)	Cecropia silkmoth	
Arctiidae		
Arctiinae		
<i>Grammia parthenice intermedia</i>	Parthenice tiger moth	
Agaristinae		
<i>Alypia langtoni</i> (Couper)	Spotted forester	
Syntomini		
<i>Ctenucha virginica</i> (Esper)	Virginia ctenucha	
Lymantriidae		
<i>Lymantria dispar</i> Linnaeus)	Gypsy moth, Exotic	

**TABLE 1 con't : MOTHS**

Geometridae

Ennominae

<i>Ematurga amitaria</i>	Cranberry spanworm
<i>Xanthotype</i> sp.	Crocus geometer
<i>Ennomos subsignaria</i>	Elm spanworm
<i>Lambdina fiscellaria</i>	Hemlock looper
<i>Eufidonia discospilata</i> Walker	Sharp-lined powder moth
<i>Eufidonia cf convergaria</i>	
<i>Probole alienaria</i> (Herrich Schäffer 1855)	Alien probole moth
<i>Probole amicarica</i>	Friendly probole
<i>Melanolophia canadaria</i>	Canada melanolophia moth
<i>Melanolophia signatoria</i>	Signate melanolophia moth
<i>Petrophora subaequaria</i>	
<i>Pero ancetaria</i>	Hubner's pero
<i>Plagodis</i> sp.	

Larentiinae

<i>Rheumaptera subhastata</i>	Spear-marked black
<i>Rheumaptera hastata</i> (Linnaeus)	Spear marked black
<i>Rheumaptera prunivorata</i>	Cherry scallop shell
<i>Eubaphe mendica</i> (Walker 1854)	The beggar moth
<i>Venusia comparia</i> Walker	

Sterrhinae

<i>Scopola limboundata</i>	Large lace-bordered moth
<i>Scopola</i> sp.	
unknown	unknown

Noctuidae

Noctuinae

<i>Feltia herilis</i> (Grote 1873)	Master's dart, Herilis dart
<i>Anagrapha falcifera</i> (Kirby 1837)	Celery looper
<i>Crymodes devastator</i> (Brace)	Glassy cutworm
<i>Eurois occulta</i>	
<i>Anaplectoides prasina</i>	

Catocalinae

<i>Pangrapta decoralis</i> Hübner	Decorated owlet
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Acronictinae

<i>Acronicta hasta</i> (Guenée)	Speared dagger moth
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Hadeninae

<i>Apamea inordinata</i> (Morrison)	
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Condicinae

<i>Leuconycta diphteroides</i> (Guenée)	Green leuconycta
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Hermiinae

<i>Phalaenophana pyramusalis</i> Walker 1859 (syn. <i>Heterogramma pyramusalis</i> )	
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Eustrotiinae

<i>Lithacodia albidula</i>	
unknown	unknown

**TABLE 1 con't : MOTHS**

Pyralidae		
Pyraustinae		
<i>Anania funebris glomeralis</i>	White-spotted sable moth	
<i>Pyrausta orphisalis</i>		
unknowns	unknowns	
Sesiidae		
Paranthreninae		
<i>Paranthrene tabaniformis</i> (Rottemberg)	Dusky clearwing	County record.Exotic.
<i>Synanthedon pictipes</i> (Grote & Robinson)	Lesser peach tree borer	
<i>Vitacea polistiformis</i> (Harris)	Grape root-borer	
Drepanidae		
<i>Drepana arcuata</i>		
Cambridae		
Crambinae		
<i>Crambus leachellus</i>		
<i>Crambus</i> sp.		
<i>Chrysoteuchia topiaria</i> (Zeller 1866)	Cranberry girdler	
Pterophoridae		
<i>Emmelina monodactyla</i> (Linnaeus 1758)		
Tortricidae		
<i>Phaneta formosana</i>		
<i>Clepsis melaleucana</i>		
<i>Choristoneura</i> sp.		
unknowns		

**TABLE 2: Lepidoptera to be sought at Pictured Rocks National Lakeshore, as of Sept. 2006**

<b>Family</b>	<b>Scientific name</b>	<b>Common name</b>
<b>Butterflies (Rhopalocera)</b>		
Papilionidae	<i>Papilio polyxenes asterius</i> Stoll	Black swallowtail
Pieridae	<i>Pontia protodice</i> (Boisduval & LeConte)	Checkered white
	<i>Pieris virginiensis</i> (W. H. Edwards)	West Virginia white
	<i>Euchloe olympia</i> (W. H. Edwards)	Olympia marble
	<i>Colias eurytheme</i> Boisduval	Orange sulphur
	<i>Eurema lisa</i> (Boisduval & LeConte)	Little sulphur
Lycaenidae	<i>Feniseca tarquinius</i> (Fabricius)	Harvester
	<i>Lycaena dorcas</i> (W. Kirby)	Dorcas copper
	<i>Lycaena hyllus</i> (Cramer)	Bronze copper
	<i>Lycaena helloides</i> (Boisduval)	Purplish copper
	<i>Satyrrium calanus</i> falacer (Godart)	Banded hairstreak
	<i>Incisalia henrici</i> (Grote & Robinson)	Henry's elfin
	<i>Erora laetus</i> (W. H. Edwards)	Early hairstreak
	<i>Everes comyntas</i> (Godart)	Eastern tailed blue
	<i>Glaucophrysche lygdamus couperi</i> Grote	Silvery blue
Nymphalidae	<i>Euptoieta claudia</i> (Cramer)	Variegated fritillary
	<i>Speyeria aphrodite</i> (Fabricius)	Aphrodite fritillary
	<i>Speyeria cybele krautwurmi</i> (Holland)	Krautwurm's fritillary
	<i>Speyeria atlantis</i> (W. H. Edwards)	Atlantis fritillary
	<i>Boloria eunomia dawsoni</i> (Barnes & McDunnough)	Bog fritillary
	<i>Boloria bellona</i> (Fabricius)	Meadow fritillary
	<i>Bolorai frigga saga</i> (Staudinger)	Frigga fritillary
	<i>Boloria freija</i> (Thunberg)	Freija fritillary
	<i>Chlosyne nycteis</i> (Doubleday & Hewitson)	Silvery checkerspot
	<i>Chlosyne harrisii</i> (Scudder)	Harris' checkerspot
	<i>Phyciodes batesii</i> (Reakirt)	Tawny crescent
	<i>Polygonia gracilis</i> (Grote & Robinson)	Hoary comma
	<i>Limenitis archippus</i> (Cramer) Viceroy	
	<i>Nymphalis vau-album j-album</i> (Boisduvall & LeConte)	Compton tortoise shell
	<i>Nymphalis antiopa</i> (Linnaeus)	Mourning cloak
Satyrinae	<i>Satyrodes eurydice</i> (Johansson)	Eyed brown
	<i>Erebia discoidalis</i> (W. Kirby)	Red-disked alpine
	<i>Oeneis jutta ascerta</i> Masters & Sorensen	Jutta arctic
	<i>Cercyonis pegala nephele</i> (Fabricius)	Wood nymph
Hesperiidae	<i>Erynnis juvenalis</i> (Fabricius)	Juvenal's dusky wing
	<i>Polites peckius</i> (W. Kirby)	Peck's skipper



**TABLE 2: con't.**

Hesperidae: con't.

*Polites origenes* (Fabricius)  
*Atrytone logan* (W. H. Edwards)  
*Euphyes bimacula* (Grote & Robinson)

Crossline skipper  
Delaware skipper  
Two-spotted skipper

**Moths**

*Sphinx kalmiae* (J. E. Smith)  
*Ctenucha virginica* (Esper)  
*Haploa confusa* (Lyman 1887)  
*Dryocampa rubicunda* (Fabricius)  
*Catocala relict*a (Walker 1858)

**TABLE 3: Lepidopteran specimens collected at Pictured Rocks National Lakeshore**

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
BUTTERFLIES (Rhopalocera)						
Papilionidae						
Papilioninae						
Papilio canadensis (Rothschild & Jordan)	F	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	
	M	6/10/2004	AEM	Carmody Rd.	gravel roadside	
Pieridae						
Pierinae						
Pieris napi oleracea (Harris)	M	8/14/2003	AEM	Left fork Chapel Rd.	streamside - gravel roadside	
	M	6/10/2004	AEM	Carmody Rd.	gravel roadside	
Pieris rapae (Linnaeus)	U	7/7/2005	AEM	Potato Patch cg	old field of dogbane	EXOTIC
	F	7/7/2005	AEM	Potato Patch cg	old field of dogbane	EXOTIC
	M	7/7/2005	AEM	Potato Patch cg	old field of dogbane	EXOTIC
Coliandinae						
Colias philodice (Godart)	M	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	can also have "alba" females
	F	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
Colias interior (Scudder)	F	8/6/2003	AEM	Becker Field	wet meadow	can also have "alba" females
	M	7/27/2004	AEM	Off H-58 near Twelvemile Beach	small, shallow, boggy seep	Has double spot - mutant?
Lycaenidae						
Theclinae						
Incisalia augustinus (W. Kirby)	U	5/13/2001	DML	bog at Legion Lake	bog	
Incisalia polia (Cook and Watson, 1907)	U	6/4/2003	AEM	Miners Beach Rd.	pine barrens roadside	det. Mogens C. Nielsen; H. 4324
	U	6/4/2003	AEM	Miners Beach Rd.	pine barrens roadside	! Mogens C. Nielsen
Incisalia eryphon (Boisduval, 1852)	U	5/13/2001	DML	bog at Legion Lake	bog bordering closed basin lake	! Mogens C. Nielsen. New Alger
Incisalia niphon clarki T. N. Freeman 1938 (syn. Callophrys niphon)	U	6/4/2004	AEM	Sand Point Marsh Tr	sandy opening in pine stand	det. Mogens C. Nielsen. Alger Co. record. H. 4328a
	U	6/1/2006	RR	Sand Point, T47N, R18W, Sec 19	wetland, beaver pond	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Satyrium acadicum (W. H. Edwards, 1862)	U	8/6/2003	AEM	Becker Field	wet meadow	! Mogens C. Nielsen. Alger Co. record; H. 4278
Satyrium liparops strigosum (Harris)	U	8/14/2003	AEM	left fork Chapel Rd.	streamside - gravel roadside	
	F	8/3/2004	ALH	IBZ, UTM 5149739n, 548253e	roadside	
Satyrium titus (Fabricius 1793)	M	7/29/2004	AEM	Grand Sable Dunes	Lake Superior coastal sand dune	! Mogens C. Nielsen. Alger Co. record. H. 4275
	M	8/3/2006	AEM	T46N, R16W, Sec 21, SW 1/4	old sand/gravel pit	
Polyommatae Celastrina lucia (W. Kirby)	M	5/13/2001	DML	Legion Lake	hardwoods near acidic lake	det. Amy E. Maskey. Alger Co. record.
	F	6/4/2003	AEM	Chapel Rd.	hardwood forest along two-track road	
Celastrina neglecta (W. H. Edwards)	M	7/7/2005	AEM	Potato Patch Campground	old field of dogbane	det. Amy E. Maskey. Alger Co. record.
Plebejus saepiolus amica (W.H. Edwards)	U	7/19/2004	AEM	right fork off Chapel Rd. old field	forest opening	
	U	6/23/2005	AEM	off right fork Chapel Rd. hardwood forest two-track road		
	U	6/23/2005	AEM	off rt fork Chapel Rd.	hardwood forest two-track road	
	U	6/23/2005	AEM	off rt fork Chapel Rd.	hardwood forest two-track road	
	U	6/23/2005	AEM	off rt fork Chapel Rd.	hardwood forest two-track road	
Lycaeninae Lycaena phlaeas americana Harris	M	7/14/2003	AEM	Lake Superior	coastal roadside	EXOTIC
	M	8/6/2003	AEM	Becker Field	wet meadow	EXOTIC

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Lycaena epixanthe michiganensis (Rawson)	M	7/7/2006	AEM	Legion Lake bog	spruce bog	
	M	7/7/2006	AEM	Legion Lake bog	spruce bog	
	F	7/7/2006	DML	Legion Lake bog	spruce bog	
	U	7/7/2006	DML	Legion Lake bog	spruce bog	
Nymphalidae Heloconiinae						
Speyeria cybele krautwurmi (Holland)	M	7/7/2003	AEM	PIRO Maintenace Yard, Munising	gravel roadside	
	F	8/6/2003	AEM	Carmody Rd.	gravel roadside	
	M	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
Speyeria atlantis (W.H. Edwards)	M	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
	F	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
	M	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
	F	7/7/2006	AEM	Potato Patch cg	old field of dogbane	
Boloria selene atrocotalis (Huard, 1927)	M	6/5/2003	AEM	Chapel Rd.	wet meadow, adj to sedge meadow & beaver pond	det. Mogens C. Nielsen; H. 4464f
	F	6/5/2003	AEM	Chapel Rd .	wet meadow, adj to sedge meadow & beaver pond	det. Mogens C. Nielsen
	M	6/5/2003	AEM	Chapel Rd .	wet meadow, adj to sedge meadow & beaver pond	
	M	6/5/2003	AEM	Chapel Rd .	wet meadow, adj to sedge meadow & beaver pond	
	M	6/5/2003	AEM	Chapel Rd.	wet meadow, adj to sedge meadow & beaver pond	deformed
	U	5/29/2006	RR	near H-58, SW of Lower Shoe Lake	cattail wetland, some standing water but drier than usual in 2006	
Nymphalinae						
Phyciodes selenis (W.F. Kirby, 1837)	F	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	! Mogens C. Nielsen
	M	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	

Family:Subfamily Species	Sex	Date II	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Phyciodes selenis (con't.)	M	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	
	M	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	
	M	6/30/2004	AEM	Mosquito River, 2-track off left fork Chapel Rd.	mixed forest, alder, beaver flooded forest	
	U	7/12/2004	AEM	off of Chapel Rd.	forest opening	! Mogens C. Nielsen, H. 4481.1
	U	7/19/2004	AEM	Right off Chapel Rd.	old field, forest opening	
	U	7/19/2004	AEM	Right off Chapel Rd.	beaver pond	! Mogens C. Nielsen, H. 4481.1
	F	7/7/2005	AEM	Potato Patch cg	old field with dogbane	
Euphydryas phaeton (Drury)	U	7/17/2000	DML	Becker Field	wet meadow	Observed only. Det. John F. Douglass. Caught and released. See PIRO Wildlife Observation Database #927
Vanessa virginiensis (Drury)	M	5/13/2001	DML	near Legion Lake	hardwood forest near closed basin lake w/ bog mats	
	M	5/14/2001	DML	near Legion Lake	hardwood forest near closed basin lake w/ bog mats	
	M	5/14/2001	DML	near Legion Lake	hardwood forest near closed basin lake w/ bog mats	
	U	8/3/2004	AEM	Beaver Basin gravel pit	sand/gravel pit opening	Reared from caterpillar on pearly everlasting. Eexuviae included.
Vanessa cardui (Linnaeus)	M	9/10/2003	AEM	Swamp Rd., off. left fork Chapel Rd	two-track road through alder/hardwood swamp	Presence due to "El Nino" years, northern populations are migrants/vagrants only
	F	6/14/2004	AEM	State forest jack pine mgt stand along H-58	jack pine clearcut	
Vanessa atalanta rubria (Fruhstorfer)	U	6/20/2005	AEM	Beaver Basin Overlook	forest opening in dirt road turnaround	
Junonia coenia (Hübner)	U	7/20/2005	AEM	12-mile Beach CG	Lake Superior coastal bluff	Alger County record

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Polygonia comma (Harris)	U	8/14/2003	AEM	near Mosquito River.	wet 2-track rd near stream	
	U	7/18/2006	AEM	Miners Lake	sandy creek delta	
Polygonia progne (Cramer)	M	8/14/2003	AEM	near Mosquito River	wet 2-track rd near stream	
Polygonia interrogationis (Fabricius)	U	7/26/2004	AEM	T47N, R17W, Sec 9	old grassy field	
	U	7/12/2004	AEM	Chapel Rd.	forest opening	
Nymphalis milberti (Godart)	M	7/6/2006	AEM	Lowder Road, T49N, R14W, Sec 11	gravel roadside	
Limenitidinae						
Limenitis arthemis arthemis (Drury)	U	7/12/2004	AEM	Chapel Rd. forest Opening		
	F	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
Satyrinae						
Enodia anthedon A. H. Clark	M	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	
Coenonympha tullia inornata (W.H. Edwards)	M-U	6/20/2003	AEM	Grand Sable Lake boat launch	field adjacent to Lake Superior s coastal dunes	abdomen squished – hard to determine gender
	M	6/23/2004	AEM	Becker Field	sedgy field	
Cercyonis pegala nephele (W. Kirby)	M	8/6/2003	AEM	Becker Field	wet meadow	
	F	8/6/2003	AEM	Becker Field	wet meadow	
Danaus plexippus (Linnaeus)	M	8/6/2003	AEM	Carmody Rd.	gravel roadside	
Megisto cymela Cramer 1777	U	6/23/2004	AEM	Becker Field	sedgy meadow	! Mogens C. Nielsen. Alger County record. H. 4578
Oeneis chryxus strigulosa (McDunnough)	M	6/14/2004	AEM	State Forest jack pine mgt stand along H-58	jack pine clearcut	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Hesperiidae						
Heteropterinae						
Carterocephalus palaemon mandan (W. H. Edwards)	M	6/5/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. Stand	old field	
	M	6/23/2004	AEM	Becker Field	sedgy meadow	
Pyrginae						
Thorybes pylades (Scudder) (syn. Pholisora catullus Fabricius)	F	6/4/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. Stand	old field	det. Mogens C. Nielsen; H. 3910.
	U	6/4/2003	AEM	Carmody Rd.	alder, cattail, sedge wetland	det. Mogens C. Nielsen. Alger County record. Specimen at MSU.
Erynnis icelus (Scudder & Burgess) (syn. Erynnis brizo)	F	6/5/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. Stand	old field	det. Mogens C. Nielsen; H. 3945
Erynnis icelus (con't)	U	6/23/2005	AEM	Lf fork Chapel Rd.	hardwood forest two-track road	
	U	6/4/2004	AEM	Marsh trail sandy opening		
	M	6/23/3004	AEM	Becker Field	sedgy meadow	
Hesperiinae						
Poanes hobomok (Harris)	M	6/4/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. stand	old field	
	F	6/5/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. stand	old field	
Polites themistocles (Latreille, 1824)	M	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	
	M	7/26/2004	AEM	T47N, R17W, S 9	old, grassy field	det. Mogens C. Nielsen. Mangled specimen. H. 4041
	U	7/26/2004	AEM	T47N, R17W, S 9	old, grassy field	det. Mogens C. Nielsen. Head of specimen glued on.

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Polites themistocles (con't)	M	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	
Polites mystic (W. H. Edwards, 1963)	M	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	! Mogens C. Nielsen; H. 4043
	M	7/12/2004	AEM	Chapel Rd. forest opening		
	M	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	
	F	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	
	F	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	
	U	6/23/2005	AEM	off right fork of Chapel Rd.	hardwood forest two-track road	
Thymelicus lineola (Ochsenheimer)	M	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	EXOTIC
	M	7/14/2003	AEM	Sand Point Rd.	Lake Superior coastal roadside	EXOTIC
	F	8/6/2003	AEM	Becker Field	wet meadow	EXOTIC
	M	7/26/2004	AEM	T47N, R17W, Sec 9	old grassy field	EXOTIC
	M	7/26/2004	AEM	T47N, R17W, Sec 9	old grassy field	EXOTIC
Hesperia comma laurentina (Lyman)	M	8/14/2003	AEM	Swamp Rd., off left fork of Chapel Rd.	two-track road through alder/hardwood swamp	
	U	6/20/2005	AEM	Beaver Basin Rd	gravel quarry	
	M	7/15/2005	AEM	Miner Rivers IBZ hunting 40 acres	forest clearing	
Hesperia leonardus Harris 1862	M	8/3/2004	AEM	Beaver Basin Overlook Rd. at gravel pit	sandy, sparsely vegetated gravel quarry	! Mogens C. Nielsen. Alger Co. record. H. 4023
Euphyes vestris metacomet (Harris)	M	7/22/2003	AEM	Little Beaver Lake boat launch	shore of shallow, brown water lake	
	U	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	



Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Euphyes vestris metacomet (con't)	F	7/29/2004	AEM	Grand Sable Dunes	Lake Superior coastal dune	
	M	7/29/2004	AEM	Grand Sable Dunes	Lake Superior coastal dune	
	U	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
Ancyloxypha numitor (Fabricius, 1793)	U	7/19/2004	AEM	Two-track off Chapel Rd. (rt fork)	beaver pond	! Mogens C. Nielsen. Alger Co. record. H. 4004. May be in MSU collection.
Amblyscirtes hegon (Scudder, 1864)	U	7/12/2004	AEM	Chapel Rd. forest opening		! Mogens C. Nielsen. Alger Co. record. H. 4096
	U	6/23/2005	AEM	Right fork of Chapel Rd.	hardwood forest two-track road	
Amblyscirtes vialis (W. H. Edwards)	U	6/23/2005	AEM	off rt fork of Chapel Rd.	hardwood forest two-track	
MOTHS						
Polyphyletic - various superfamilies						
SphingidaeHemaris thysbe (Fabricius)	F	6/23/2003	AEM	Kingston Lake	lakeshore lined with alder	H. 7853
Pachysphinx modesta (Harr.)	M	7/28/2004	JFD	Left fork of Chapel Rd near Mosquito R.	streamside near aspen attracted in car headlights at 23:00	
Saturnidae Actias luna (Linnaeus)	M	7/1/2003	AEM DML	Legion Lake	underwater on log	long dead at time of capture
Hyalophora cecropia (Linnaeus)	F	6/12/2001	DLB	PIRO Maintenance Yard, Munising	near building night light	
Arctiidae						
Arctiinae						
Grammia parthenice intermedia (syn. <i>Apantesis parthenice intermedia</i> )	M	6/7/2003	LAK	Grand Marais Visitor Center	old field surrounded by hardwoods/dunes at lights 23:00	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Agaristina						
Alypia langtoni (Couper)	U	7/19/2004	AEM	Two-track off Rt fork Chapel Rd.	Old field/forest opening	det. Mogens C. Nielsen. New Alger Co. record. H. 9318
Syntominae						
Ctenucha virginica (Esper)	F	7/12/2004	AEM	Chapel Rd. forest opening		H. 8262 Subfamily designation is in dispute. Syntominae is used by Walker.
Lymantriidae						
Lymantria dispar (Linnaeus)	M	8/20/2003	AEM	Munising Range. Light Bldg	indoors	EXOTIC. Major hatch/flight period
	U	8/8/2005	AEM	Munising Range. Light Bldg	town	EXOTIC
	M	8/9/2006	DML	Munising Range. Light Bldg	town	EXOTIC
Geometridae						
Ennominae						
Ematurga amitaria	M	6/5/2003	AEM	Chapel Rd., T47N, R17W, S 9	old field in Lake Superior State Forest mgt. stand	adults day-flying
Xanthotype sp.	M	7/14/2003	AEM	Sand Point Marsh Tr	boggy Lake Superior coastal marsh	
Ennomos subsignaria	F	8/7/2003	LAK	Grand Marais Visitor Center	old field surrounded by hardwoods/dunes	at lights 23:00
Lambdina fiscellaria	F	9/10/2003	AEM	Chapel Rd. in Lake Superior State Forest mangt. stand	old field	may be confused with <i>L.</i> <i>turbataria</i>
Eufidonia discospilata Walker	M	7/27/2004	AEM	Off H-58 near Twelvemile Beach	small, shallow boggy seep	det. Mogens C. Nielsen. Alger Co. record. H. 6639
Eufidonia cf convergaria	U	6/14/2006	AEM	Along H-58 in State of Mich. jack pine mgt stand	jack pine clearcut	May be <i>E. notoria</i>
Probole alienaria (Herrich Schäffer 1855)	U	6/14/2004	AEM	State forest jack pine mgt stand along H-58	jack pine stand	EXOTIC

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Probole alienaria (con't)	U	6/20/2005	AEM	Beaver Basin Rd.	gravel quarry opening	EXOTIC
Probole amicaria	U	6/14/2004	AEM	Along H-58 in State Forest jack pine mgt. stand	jack pine	H. 6838
Melanolophia canadaria	U	6/16/2004	AEM	Grand Sable boat access	forest opening near inland lake	H. 6620
	U	6/28/2004	AEM	Miners River	streamside, roadside	
Melanolophia signataria	U	6/20/2005	AEM	Beaver Basin Rd	gravel quarry	H. 6621
Petrophora subaequaria	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine stand	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	
	U	6/14/2004	AEM	Along H-58, State Forest jack pine mgt stand	jack pine clearcut	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
	U	6/23/2004	AEM	Becker Field	sedge meadow	
Pero ancetaria	U	6/20/2005	AEM	Beaver Basin Overlook	forest opening	
Plagodis sp.	U	7/19/2004	AEM	off Chapel Rd.	beaver pond	
Larentiinae						
Rheumaptera subhastata	F	6/23/2003	AEM	Kingston Lake	lakeshore lined with alder	
Rheumaptera hastata (Linnaeus)	U	7/7/2005	AEM	Potato Patch cg	old field of dogbane	
Rheumaptera prunivorata	U	7/26/2004	AEM	T47N, R17W, S 9	old grassy field	
	U	7/19/2004	AEM	rt fork off Chapel Rd.	old field - forest opening	
Eubaphe mendica (Walker)	F	7/9/2003	AEM	Mosquito River Tr	wet hardwoods	daytime, very docile
Venusia comparia Walker	U	6/28/2004	AEM	Miners River	streamside forest	
	U	6/28/2004	AEM	Miners River	streamside forest	
<i>Operophtera bruceata</i> (Hulst)	M	11/5/2009	DML	Miners Castle	maple-beech forest	2 males; H. 7437
Sterrhinae						
Scopola limboundata	U	7/13/2005	AEM	north side of Beaver Lake	oak pine barrens	H. 7159
Scopola sp.	U	7/13/2005	AEM	north side of Beaver Lake	oak pine barrens	
unknown						
unknown	U	7/20/2004	AEM	Miners River Tr	streamside forest	
Noctuidae						
Noctuinae						
Feltia herilis	M	8/7/2003	LAK	Grand Marais Visitor Center	old field surrounding hardwoods/dunes	
Anagrapha falcifera	M	8/6/2003	AEM	Becker Field	wet meadow	
	F	6/23/2004	AEM	Becker Field	sedgy meadow	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Crymodes devastator (Brace)	M	8/7/2003	LAK	Grand Marais Visitor Center	old field surrounding hardwoods/dunes	det. Mogens C. Nielsen; H. 9382
Eurois occulta	M	7/26/2006	AEM	Hurricane River	on hemlock trunk	
Anaplectoides prasina	U	7/15/2005	ALH	Munising Range Light Bldg.	on J L Belant's window sill	
Catocalinae						
Pangrapta decoralis Hübner	F	7/27/2004	AEM	Off H-58 near Twelvemile Beach	small, shallow boggy seep	det. Mogens C. Nielsen. Alger Co. record. H. 8490
	U	7/20/2004	AEM	Miners Beach Tr	streamside forest	det. Mogens C. Nielsen. H. 8460
Acronictinae						
Acronicta hasta (Guenée)	U	7/19/2004	AEM	Two-track off Rt fork Chapel Rd.	old field/forest opening	det. Mogens C. Nielsen.
Hadeninae						
Apamea inordinata (Morrison)	U	7/29/2004	AEM	Grand Sable Dunes Sable Creek	Lake Superior coastal dunes & jack pine forest	det. Mogens C. Nielsen. Alger Co. record. H. 9353
Condicinae						
Leuconycta diptheroides (Guenée)	U	7/19/2004	AEM	Two-track off rt fork Chapel Rd.	Old field/forest opening	det. Mogens C. Nielsen. Alger Co. record. H. 9065
Herminiinae						
Phalaenophana pyramusalis Walker (syn. Heterogramma pyramusalis)	M	6/28/2004	AEM	Miners River	streamside forest	
	U	6/28/2004	AEM	Miners river	streamside forest	
	U	6/23/2004	AEM	Becker Field	sedgy meadow	
Eustrotiinae						
Lithacodia albidula	U	6/23/2004	AEM	Becker Field	sedgy meadow	
unknown						
unknown	U	7/20/2004	AEM	Miners River Tr	streamside conifer forest	#8490 assigned by Mogens Nielsen at MSU

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Pyralidae						
Pyraustinae						
Anania funebris glomeralis	U	6/23/2004	AEM	Becker Field	sedgy meadow	
	U	6/5/2003	AEM	Chapel Rd., T47N, R17W, S 9	old field in Lake Superior State Forest management stand	
Pyrausta orphisalis	U	6/23/2005	AEM	off rt fork of Chapel Rd.	hardwood forest two-track road	
unknown						
unknown	U	6/23/2004	AEM	Becker Field	sedgy meadow	
unknown	U	8/3/2004	AEM	T48N, R16W, S 21, SW 1/4	old sand, gravel pit	
Sesiidae						
Paranthreninae						
Paranthrene tabaniformis Co. (Rottemberg)	U	7/19/2004	AEM	2-track off rt fork Chapel Rd.	beaver pond	det. Mogens C. Nielsen. Alger record. EXOTIC.
Synanthedon pictipes (Grote & Robinson)	U	6/20/2005	AEM	Beaver Basin Rd.	gravel quarry on daisy	
Vitacea polistiformis (Harris)	U	7/19/2004	AEM	Two-track off rt fork Chapel Rd.	beaver pond	det. Mogens C. Nielsen. Retained at MSU.
Drepanidae						
Drepana arcuata	U	6/30/2004	AEM	west side of Mosquito R.	two-track Beaver pond flooded road	collected dead in water
Cambridae						
Crambinae						
Crambus leachellus (Zincken 1818)	U	6/28/2004	AEM	Miners River	streamside forest	
Crambus sp.	U	7/12/2004	AEM	Chapel Rd.	forest opening	
Chrysoteuchia topiaria (Zeller 1866)	U	6/23/2004	AEM	Becker Field	sedgy meadow	H. 5391
	U	6/23/2004	AEM	Becker Field	sedgy meadow	

Family:Subfamily Species	Sex	Date	Collector's Initials	Location	Habitat	Notes / Hodges' No.
Pterophoridae						
Emmelina monodactyla (Linnaeus 1758)	U	6/30/2004	AEM	west side of Mosquito R.	Beaver pond flooded road 2-track	
Tortricidae						
Phaneta formosana	U	6/23/2004	AEM	Becker Field	sedgy meadow	
Clepsis melaleucana	U	6/20/2005	AEM	Beaver Basin Rd	gravel quarry	
Choristoneura sp.	U	7/7/2006	AEM	Legion Lake	spruce bog	
unknown	U	7/6/2006	AEM	Lowder Rd., T 49N, R14W, Sec 11		
unknown	U	7/15/2005	AEM	IBZ, Miners hunting 40 acres	hardwood forest clearing	
unknown	U	7/12/2004	AEM	Legion Lake	hemlock-bog edge	
unknown	U	7/12/2004	AEM	Legion Lake	hemlock-bog edge	
unknown	U	7/12/2004	AEM	Legion Lake	hemlock-bog edge	
unknown	U	7/12/2004	AEM	Legion Lake	hemlock-bog edge	
unknown	U	7/2/2004	AEM	Chapel Rd. forest opening		

#### LEGEND

M = male

F = female

U = sex unknown

PIRO = Pictured Rocks National Lakeshore

MSU = Michigan State University

det. = (taxonomy) determined by

! = (taxonomy) confirmed by

H. = Hodges' number

syn. = synonym

cg = campground

tr = trail

#### COLLECTORS' INITIALS:

AEM = Amy E. Maskey

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